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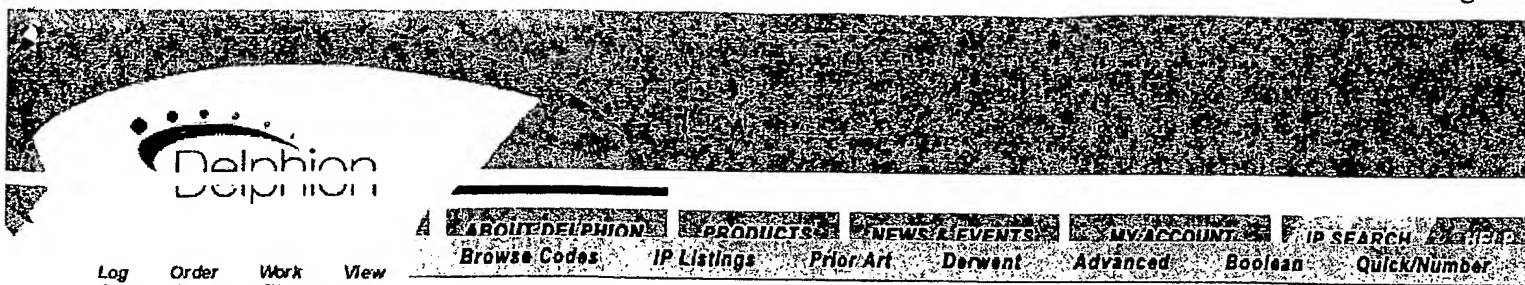
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Title: **JP2001060466A2: SET BATTERY**

Country: **JP Japan**

Kind: **A2 Document Laid open to Public inspection**

Inventor(s): **IWATA MIKIO**

Applicant/Assignee:



JAPAN STORAGE BATTERY CO LTD

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Issued/Filed Dates: **March 6, 2001 / Aug. 23, 1999**

Application Number: **JP1999000234977**

IPC Class: **H01M 10/50; H01M 2/02; H01M 2/10; H05K 7/20;**

Priority Number(s): **Aug. 23, 1999 JP1999000234977**

Abstract:



Problem to be solved: To efficiently radiate the heat generated in a battery by connecting a cooling device capable of sending and discharging a coolant inside of a set battery case storing a plurality of cells.

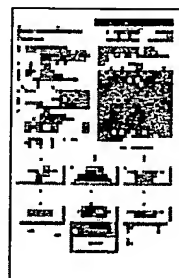
Solution: Lithium ion secondary batteries 1 as a plurality of long cylindrical cells stored in a set battery case 4 manufactured by forming a stainless steel plate into the shape of a box, respectively have a positive electrode terminal 2 and a negative electrode terminal 3 projected from an upper end surface. The positive electrode terminal 2 is formed by an aluminum rod material, the negative electrode terminal 3 is formed by a copper rod material, and they are upwardly projected to the external through penetrated opening formed on the upper end surface of the set battery case 4, and the penetrated parts are sealed through a sealing material. The set battery case 4 has an inlet 4a at a lower part of one end and an outlet 4b at an upper part of the other end. An external cooling device circulates a coolant such as the insulating oil or the liquid paraffin in the set battery case 4 through the inlet 4a and the outlet 4b. The coolant flows among lithium ion secondary batteries 1 for cooling the same, whereby the positive electrode terminal 2 and the negative electrode terminal 3 are directly cooled.

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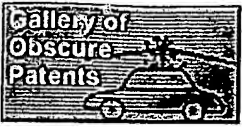
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PATENT ABSTRACTS OF JAPAN(21) Application number: **11234977**(51) Intl. Cl.: **H01M 10/50 H01M 2/02 H01M 2/10 H05K 7/20**(22) Application date: **23.08.99**

(30) Priority:

(43) Date of application
publication: **06.03.01**(84) Designated contracting
states:(71) Applicant: **JAPAN STORAGE BATTERY CO
LTD**(72) Inventor: **IWATA MIKIO**

(74) Representative:

(54) SET BATTERY

(57) Abstract:

PROBLEM TO BE SOLVED: To efficiently radiate the heat generated in a battery by connecting a cooling device capable of sending and discharging a coolant inside of a set battery case storing a plurality of cells.

SOLUTION: Lithium ion secondary batteries 1 as a plurality of long cylindrical cells stored in a set battery case 4 manufactured by forming a stainless steel plate into the shape of a box, respectively have a positive electrode terminal 2 and a negative electrode terminal 3 projected from an upper end surface. The positive electrode terminal 2 is formed by an aluminum rod material, the negative electrode terminal 3 is formed by a copper rod material, and they are upwardly projected to the external through penetrated opening formed on the upper end surface of the set battery case 4, and the penetrated parts are sealed through a sealing material. The set battery case 4 has an inlet 4a at a lower part of one end and

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